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10/645,501	08/22/2003	David Peyton Cox	200206848-1	8776

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EXAMINER
PANTOLIANO JR, RICHARD

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>12 April 2007</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-28</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-28</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This Office Action is filed in response to amendments filed on **12 April 2007** in

regard to Application# **10/645,501** . **Claims 1-28** are currently pending and have been

considered below.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   **Claim 6** is rejected under 35 U.S.C. 102(b) as being anticipated by <u>Shaw et al</u>

(US Pat: 5,604,843), hereinafter <u>Shaw</u>.

4.   As to **Claim 6**, <u>Shaw</u> discloses the invention substantially as claimed including a

method used while assembling in processor memory a stack of device objects (DOs)

representing a device, the operating system of the processor having a kernel, the

device having a corresponding physical device object (PDO), the method comprising:

        a) determining a uni-role first driver registered to the device *(Col. 4, lines 13 –*

25)(The "minidriver" meets this claim limitation);

        b) invoking the first driver, which includes passing the PDO of the device to the

first driver *(Col. 4, lines 13 – 25)*; and

c) passing the PDO from the first driver to a multi-role second driver or to a component

of the kernel *(Col. 4, lines 13 – 25)*.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   **Claims 1-5, 7-14, 20-28** are rejected under 35 U.S.C. 103(a) as being

unpatentable over <u>AAPA</u> (Applicant's Admitted Prior Art) in view of <u>Shaw</u>.

7.   As to **Claim 1**, <u>AAPA</u> discloses the invention substantially as claimed including a

method used while building in processor memory a stack of device objects (DOs)

representing a device, using a multi-role driver for a plurality of roles at least one of

which corresponds to the device *(pg 2, para. [0004] and [0005])*.

8.   <u>AAPA</u> does not explicitly disclose registering a plurality of helper drivers so as to

uniquely correspond to the plurality of roles, respectively, each helper driver mapping

uniquely to one of the multiple roles of the multi-role driver, respectively; and indirectly

specifying a corresponding one of the multiple roles of the multi-role driver by specifying

the helper driver mapped thereto.

9.   <u>Shaw</u> explicitly discloses including an intermediate driver in between a device

driver and a computer's operating system that is registered in place of the original

device driver and forwards all attempts at accessing the device from the intermediate driver to the device driver *(Col. 3, line 59 – Col. 4, line 25).*

10.   It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of <u>AAPA</u> with the teachings of <u>Shaw</u>. One would have been motivated by the fact that devices often share similar functions that can be implemented once and used by multiple devices. The minidrivers taught by <u>Shaw</u> would allow for a reduction in complexity of implementation by allowing developers to implement functions once in the universal driver and used by all of the minidrivers associated with the individual devices *(<u>Shaw</u>; Col. 1, line 56 – Col. 3, line 5, and Col. 3, line 59 – Col. 4, line 25).*

11.   As to **Claim 2**, <u>AAPA</u> in view of <u>Shaw</u> further teaches wherein the multi-role driver is operable to run in the WINDOWS Driver Model environment *(<u>AAPA</u>; para. [0004]).*

12.   As to **Claim 3**, <u>AAPA</u> discloses wherein a role is determined according to a device type for which the multi-role driver is invoked and the extent of the stack at the point at which the multi-role driver is invoked *(para. [0008]).*

13.   As to **Claim 4**, <u>AAPA</u> discloses wherein each of the multiple roles in the multi-role driver has a corresponding DOPush function *(para. [0007] and [0008]).*

14.   Shaw discloses wherein the intermediate driver can access the functionality of the original driver (Shaw; Col. 1, line 56 – Col. 3, line 5, and Col. 3, line 59 – Col. 4, line 25)(The fact that the "minidrivers and universal driver combine to preferably provide the same functionality" of a standard driver meets this claim limitation).

15.   As to **Claim 5**, Shaw discloses wherein each intermediate driver communicates with an original device driver, accessing the same functions that would be accessed by calls made by the operating system (Col. 1, line 56 – Col. 3, line 5, and Col. 3, line 59 – Col. 4, line 25)

16.   As to **Claim 7**, AAPA discloses the invention substantially as claimed including a method used while assembling in processor memory a stack of device objects (DOs) representing a device, the device having a corresponding physical device object (PDO), the method comprising:

a) determining a driver registered to the device (para. [0003]-[0005]); and

b) invoking the driver, which includes passing the PDO of the device to the driver (para. [0006]).

17.   AAPA does not explicitly teach passing the PDO away from the driver without attempting to attach to the stack a DO corresponding to the driver.

18.   Shaw discloses the use of an intermediate, uni-role driver that is registered with the operating system instead of the original device driver and forwards necessary data structures and requests to said device driver (Col. 3, line 59 – Col. 4, line 25).

19.   It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of <u>AAPA</u> with the teachings of <u>Shaw</u>. One would have been motivated by the fact that devices often share similar functions that can be implemented once and used by multiple devices. The minidrivers taught by <u>Shaw</u> would allow for a reduction in complexity of implementation by allowing developers to implement functions once in the universal driver and used by all of the minidrivers associated with the individual devices *(<u>Shaw</u>; Col. 1, line 56 – Col. 3, line 5, and Col. 3, line 59 – Col. 4, line 25)*.

20.   As to **Claim 8**, <u>AAPA</u> discloses the invention substantially as claimed including a method used while assembling in processor memory a stack of device objects (DOs) representing a device, there being a multi-role driver for a plurality of roles at least one of which corresponds to the device, the device having a corresponding physical device object (PDO), the method comprising:

a) providing a plurality of DOPush functions in a multi-role driver *(para. [0007])*;

b) loading the multi-role driver into the memory *(para. [0005])*; and

c) invoking one of the DOPush functions, which includes passing the PDO of the device to the invoked DOPush function *(para. [0007])*.

21.   <u>AAPA</u> does not explicitly disclose the external invoking of the functions within the multi-role driver.

22.   Shaw explicitly discloses the use of an intermediate driver that is registered with

the operating system instead of the original device driver and forwards necessary data

structures and requests to said device driver *(Col. 3, line 59 – Col. 4, line 25)*.

23.   It would have been obvious to one of ordinary skill in the art at the time of

invention to modify the method of AAPA with the teachings of Shaw. One would have

been motivated by the fact that devices often share similar functions that can be

implemented once and used by multiple devices. The minidrivers taught by Shaw

would allow for a reduction in complexity of implementation by allowing developers to

implement functions once in the universal driver and used by all of the minidrivers

associated with the individual devices *(Shaw; Col. 1, line 56 – Col. 3, line 5, and Col. 3,*

line 59 – Col. 4, line 25).

24.   As to **Claim 9**, AAPA further discloses wherein a routine is called to pass the

necessary data to the device driver function (para. [0005]).

25.   Shaw further discloses wherein the intermediate driver is used to make all

necessary calls to the device driver for the operating system *(Col. 1, line 56 – Col. 3,*

line 5, and Col. 3, line 59 – Col. 4, line 25).

26.   As to **Claim 10**, AAPA further discloses wherein the multi-role driver is operable

to run in the WINDOWS Driver Model environment *(para. [0004])*.

27.   As to **Claim 11**, <u>Shaw</u> further discloses only the intermediate driver being directly

accessible by the operating system (*Col. 1, line 56 – Col. 3, line 5, and Col. 3, line 59 –*

Col. 4, line 25).

28.   As to **Claim 12**, <u>AAPA</u> discloses wherein a role is determined according to a

device type for which the multi-role driver is invoked and the extent of the stack at the

point at which the multi-role driver is invoked *(para. [0008]).*

29.   As to **Claim 13**, <u>AAPA</u> discloses the invention substantially as claimed including

a method used while assembling in processor memory a stack of device objects (DOs)

representing a device, the method comprising: providing a multi-role driver for a plurality

of device types *(para. [0005]).*

30.   <u>AAPA</u> does not explicitly disclose not registering, in the registry of the operating

system, the multi-role driver as having a role in assembly of the stack.

31.   <u>Shaw</u> explicitly discloses the use of an intermediate driver that is registered with

the operating system instead of the original device driver and forwards necessary data

structures and requests to said device driver *(Col. 3, line 59 – Col. 4, line 25).*

32.   It would have been obvious to one of ordinary skill in the art at the time of

invention to modify the method of <u>AAPA</u> with the teachings of <u>Shaw</u>. One would have

been motivated by the fact that devices often share similar functions that can be

implemented once and used by multiple devices. The minidrivers taught by <u>Shaw</u>

would allow for a reduction in complexity of implementation by allowing developers to

implement functions once in the universal driver and used by all of the minidrivers

associated with the individual devices *(Shaw; Col. 1, line 56 – Col. 3, line 5, and Col. 3,*

line 59 – Col. 4, line 25).

33.   As to **Claim 14**, AAPA discloses wherein the multi-role driver is operable to run in

the WINDOWS Driver Model environment *(para. [0004]).*

34.   As to **Claims 20-23**, being directed to the apparatus performing the method of

Claims 1-4, these claims are rejected for the same reasoning as applied to **Claims 1-4**

above.

35.   As to **Claim 24-28**, being directed to the code arrangement on a machine-

readable medium with said code arrangement performing the method of **Claims 1-5**,

these claims are rejected for the same reasoning as applied to **Claims 11-5** above.

36.   **Claims 15-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Shaw in view of AAPA.

37.   As to **Claim 15**, Shae discloses the invention substantially as claimed including a

code arrangement on a machine-readable medium execution of which facilitates

assembling in processor memory a stack of device objects (DOs) representing a device,

the machine-readable code arrangement comprising:

a) a plurality of helper driver code portions *(Col. 3, line 59 – Col. 4, line 25 and*

Fig. 2, 203); and

b) an installer code portion for registering the plurality of helper driver code

portions so as to uniquely map to the multiple roles, respectively; each helper driver

code portion being operable to receive a corresponding PDO and pass the PDO to

another driver *(Col. 3, line 59 – Col. 4, line 25 and Fig. 2, 203) (This is inherent, since*

the individual minidrivers must be registered in the operating system with the individual

devices).

38.   Shaw does not explicitly disclose a multi-role driver code portion which

corresponds to the device, the multi-role driver being executable from the plurality of

helper drivers based on the functionality being accessed, or the attaching of the helper

drivers to the stack without attaching the multi-role driver to the stack.

39.   AAPA explicitly discloses a multi-role driver capable of mapping to many roles of

a device *(para. [0004]-[0006])*.

40.   One of ordinary skill in the art at the time of invention would have been motivated

to modify the code arrangement discussed by Shaw with the teachings of AAPA to allow

for the distribution of multiple devices drivers in one binary file, thereby simplifying the

packaging and distribution of the driver and allow for the extending of functionality of

said multi-role driver in the event that a portion of the driver code required updating.

41.   As to **Claim 16**, <u>Shaw</u> in view of <u>AAPA</u> further discloses wherein the machine-readable code comprises instructions for the multi-role driver to be operable to run in the WINDOWS Driver Model environment *(<u>AAPA</u>; para. [0004])*.

42.   As to **Claim 17**, <u>AAPA</u> further discloses wherein the machine-readable code comprises instructions for a role to be determined according to a device type for which the multi-role driver is invoked and the extent of the stack at the point at which the multi-role driver is invoked *(para. [0008])*.

43.   As to **Claim 18**, <u>Shaw</u> further discloses wherein the functionality of the device driver is exposed to the operating system via the intermediate driver *(Col. 3, line 59 – Col. 4, line 25 and Fig. 2, 203)*.

44.   As to **Claim 19**, <u>Shaw</u> further discloses wherein each intermediate driver communicates with an original device driver, accessing the same functions that would be accessed by calls made by the operating system *(Col. 3, line 59 – Col. 4, line 25 and Fig. 2, 203)*.

Response to Arguments

45.   Applicant's arguments with respect to **Claims 1-28** have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

46.   Examiner has cited particular columns and line numbers and/or figures in the references as applied to the claims for the convenience of the applicant. Applicant is reminded that rejections are based on references as a whole and not just the cited passages. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the cited art or disclosed by the examiner.

47.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

48.   A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
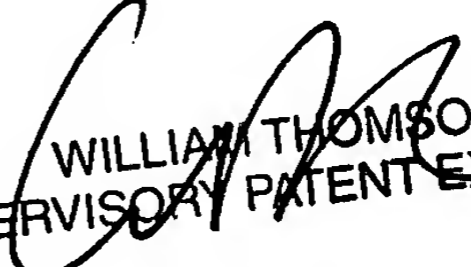
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

49.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Pantoliano Jr whose telephone number is (571) 270-1049. The examiner can normally be reached on Monday-Thursday, 8am - 4 pm EST.

50.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on (571)272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

51.   Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RP
07/02/2007

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